



# INDUSTRIAL STEAM, GAS AND COMBINED-CYCLE TURBINE OIL

FOR GEARED TURBINES WITH LOAD REQUIREMENT

[www.shell.us/power](http://www.shell.us/power)

## Shell Turbo® S4 GX

### SETTING A NEW STANDARD

Shell Turbo® S4 GX is based on gas-to-liquids (GTL) technology and has been developed to meet the demands of the latest high-efficiency turbine systems with gearboxes. It is designed to offer outstanding, long-term performance under the most severe operating conditions and will help to minimize deposit and sludge formation even under cyclic peak-loading conditions.

### GLOBALY CONSISTENT

Shell Turbo® S4 GX is derived from purified natural gas, which produces a tightly specified hydrocarbon chemical structure. This defined chemistry delivers consistent and reliable performance, unlike crude-based oils that can vary significantly depending on their source and refining process.

The quality of Shell Turbo® S4 GX is neither crude oil nor location dependent, and long-term availability is assured.

### APPLICATIONS

Shell Turbo® S4 GX is designed for use in industrial steam, light- and heavy-duty gas and combined-cycle turbines, including geared turbines with load requirement.



### SPECIFICATIONS AND APPROVALS

Shell Turbo® S4 GX meets and exceeds the specifications and requirements of the major turbine manufacturers, including MAN D&T, Siemens, GE, MHPS and Alstom.

**It is available in ISO grades 32 and 46.**

#### Industry specifications

ASTM 4304-13 Type I, II and III; GB (China) 11120-2011, L-TSE, L-TGE and L-TGSE; DIN 51515 Part 1 L-TD and Part 2 L-TG; JIS K-2213 Type 2; ISO 8068, L-TGF and L-TGSE. GE approved as a Low Varnishing (LV) Fluid.



#### EXTRA LONG LIFE

**10,000+**

HOURS, TURBINE OIL STABILITY TEST (TOST LIFE)



#### SYSTEM EFFICIENCY

**1**

MINUTE, AIR RELEASE



#### DESIGNED TO PROTECT

**20**

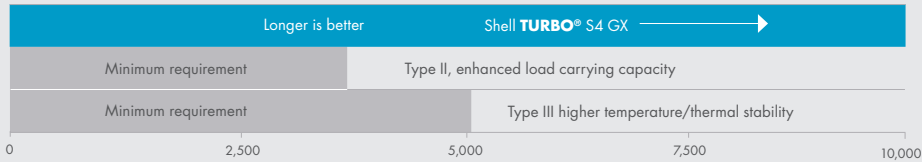
MG, SLUDGE (TOST 1,000 HOURS)

## DESIGNED FOR LONG OIL LIFE

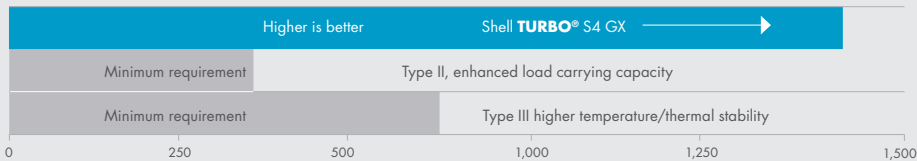
Shell Turbo® S4 GX has outstanding resistance to degradation from oxidation and thermal stresses. In tests, Shell Turbo® S4 GX performs twice as well as the industry

standard, thereby offering extended service life, reduced maintenance costs and downtime when compared with conventional mineral oil technology.

ASTM D4304, test method ASTM D943 TOST life, hours



ASTM D4304, method ASTM D2272 rotating pressure vessel oxidation test, minutes



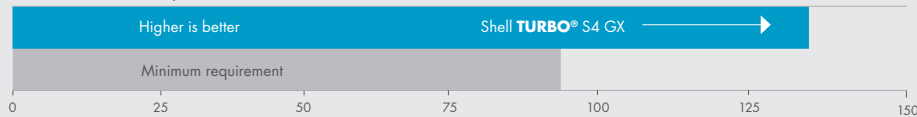
Product data shown is typical of the current product. While future production will conform to Shell's specification, variations in these characteristics may occur.

## ENHANCING SYSTEM EFFICIENCY

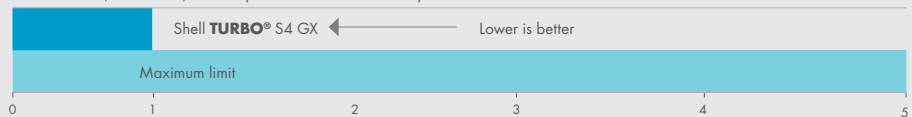
Demulsibility, air release, resistance to foaming and viscosity index are critical performance factors for oil in the latest turbine designs, especially turbines that

operate at higher temperatures and have smaller oil volumes with shorter oil reservoir residence times. Shell Turbo® S4 GX offers excellent performance in all four areas.

GB 11120-2011, viscosity index



ASTM D4304, air release, minutes (test method ASTM D3427)

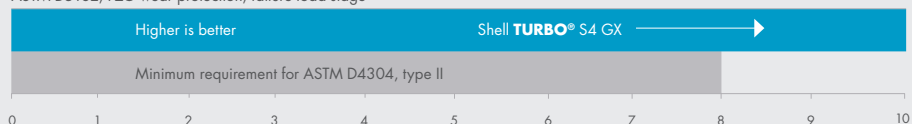


## DESIGNED TO PROTECT YOUR TURBINE

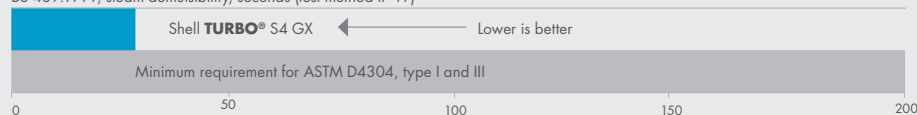
Shell Turbo® S4 GX lubricates the hottest gas turbine bearings with minimal deposit build-up or sludge formation. This reduces the potential for critical component failure

and the risk of unplanned turbine shutdown. Shell Turbo® S4 GX also offers enhanced anti-wear protection for heavily loaded gearboxes.

ASTM D5182, FZG wear protection, failure load stage



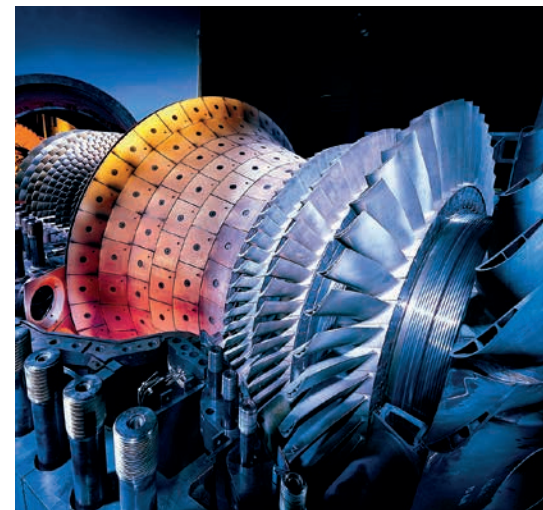
BS 489:1999, steam demulsibility, seconds (test method IP 19)



## SUPERIOR PERFORMANCE

Shell's base fluids derived from natural gas using GTL technology have a lower sulphur content and a more uniform structure than crude oil, thus enabling Shell Turbo® S4 GX to offer enhanced performance compared with conventional mineral oils.

Shell Turbo® S4 GX offers excellent degradation resistance, equipment protection and load-carrying capacity. It can help to maintain optimum operating conditions even under the most challenging situations.



## FULL PRODUCT AND SERVICE PORTFOLIO

Whatever your needs or application, we can provide a full range of oils and greases, including synthetic, high-performance products and additional services.

## CONTACT

Talk to us about the benefits that GTL-based Shell turbine oils could have for your business. Find out more by visiting [www.shell.us/power](http://www.shell.us/power)

**SHELL LUBRICANTS**  
TOGETHER ANYTHING IS POSSIBLE